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Job No.: CTCE/BBMP/W.No.09/BBU/WMM/Gradation/2015-16 14.09.2015

GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **Mr. B.B. Umesh,**
#385, Bettaulsur (P), Bangalore North Taluk.

Name of Work : Improvements & Asphalting to Kodigehalli Enclave roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.

Reference : EE/BTP/BBMP/E-PMT/10(16739)WO/32/2015-16 Dated: 22.04.2015

Date of Testing : 14.09.2015

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): **5000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	130	130	2.6	97.4	95-100
22.4	1525	1655	33.1	66.9	60-80
11.2	1020	2675	53.5	46.5	40-60
4.75	650	3325	66.5	33.5	25-40
2.36	485	3810	76.2	23.8	15-30
0.600	450	4260	85.2	14.8	8-22
0.075	485	4745	94.9	5.1	0-8

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Note:

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Job No.: CTCE/BBMP/W.No.09/BBU/WMM/Gradation/2015-16 14.09.2015

GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **Mr. B.B. Umesh,**
#385, Bettaulsur (P), Bangalore North Taluk.

Name of Work : Improvements & Asphalting to Kodigehalli Enclave roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.

Reference : EE/BTP/BBMP/E-PMT/10(16739)WO/32/2015-16 Dated: 22.04.2015

Date of Testing : 14.09.2015

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): **5000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	190	190	3.8	96.2	95-100
22.4	1525	1715	34.3	65.7	60-80
11.2	1030	2745	54.9	45.1	40-60
4.75	765	3510	70.2	29.8	25-40
2.36	515	4025	80.5	19.5	15-30
0.600	300	4325	86.5	13.5	8-22
0.075	365	4690	93.8	6.2	0-8

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Job No.: CTCE/BBMP/W.No.09/BBU/WMM/Gradation/2015-16 *14.09.2015*

GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **Mr. B.B. Umesh,**
#385, Bettaulsur (P), Bangalore North Taluk.

Name of Work : Improvements & Asphalting to Kodigehalli Enclave roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.

Reference : EE/BTP/BBMP/E-PMT/10(16739)WO/32/2015-16 Dated: 22.04.2015

Date of Testing : 14.09.2015

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): **5000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	195	195	3.9	96.1	95-100
22.4	1530	1725	34.5	65.5	60-80
11.2	1020	2745	54.9	45.1	40-60
4.75	685	3430	68.6	31.4	25-40
2.36	600	4030	80.6	19.4	15-30
0.600	425	4455	89.1	10.9	8-22
0.075	300	4755	95.1	4.9	0-8

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GRADATION FOR WMM
MORTH TABLE-400-11

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Agency : **Mr. B.B. Umesh,**
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Name of Work : Improvements & Asphalting to Kodigehalli Enclave roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.

Reference : EE/BTP/BBMP/E-PMT/10(16739)WO/32/2015-16 Dated: 22.04.2015

Date of Testing : 14.09.2015

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): **5000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	160	160	3.2	96.8	95-100
22.4	1520	1680	33.6	66.4	60-80
11.2	1080	2760	55.2	44.8	40-60
4.75	665	3425	68.5	31.5	25-40
2.36	615	4040	80.8	19.2	15-30
0.600	400	4440	88.8	11.2	8-22
0.075	350	4790	95.8	4.2	0-8

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Job No.: CTCE/BBMP/W.No.09/BBU/WMM/AIV/2015-16 14.09.2015

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
Name of the Work	Improvements & Asphalting to Kodigehalli Enclave roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/10(16739)WO/32/2015-16 Dated: 22.04.2015
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	14.09.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	380	389	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	85	86	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	295	303	
4	Aggregate Impact value = percent fines	22.37	22.11	
	100* (W_2/W_1)%			22.24

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.09/BBU/WMM/AIV/2015-16 14.09.2015

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
Name of the Work	Improvements & Asphalting to Kodigehalli Enclave roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/10(16739)WO/32/2015-16 Dated: 22.04.2015
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	14.09.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	389	392	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	88	89	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	303	
4	Aggregate Impact value = percent fines	22.62	22.70	
	100* (W_2/W_1)%			22.66

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.09/BBU/WMM/S-T/2015-16 14.09.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
Name of Work	Improvements & Asphalting to Kodigehalli Enclave roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/10(16739)WO/32/2015-16 Dated: 22.04.2015
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	14.09.2015

Civil-Tech Consultants & Engineers Bangalore

Result : Flakiness Index = **11.56%**

Elongation Index = **13.25%**

Result : Combined Flakiness & Elongation index 24.81%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.09/BBU/WMM/S-T/2015-16 14.09.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
Name of Work	Improvements & Asphalting to Kodigehalli Enclave roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/10(16739)WO/32/2015-16 Dated: 22.04.2015
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	14.09.2015

Result : Flakiness Index = **12.28%**

Elongation Index = **13.25%**

Result : Combined Flakiness & Elongation index 25.53%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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T-2377

Job No: CTCE/BBMP/W.No.09/BBU/CSR-10/971k/SDBC(QB)/2015-16 14.10.2015

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

*CUSTOMER	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
*AGENCY	:	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
*NAME OF THE WORK	:	Improvements & Asphalting to Kodigehalli Enclave roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
REFERENCE	:	EE/BTP/BBMP/E-PMT/10(16739)WO/32/2015-16 Dated: 22.04.2015
*SAMPLE ID	:	Bitumen
DATE OF SAMPLING	:	12.10.2015
PERIOD OF TESTING	:	14.10.2015

The results of the tests conducted on the bitumen sample using for Semi Dense Bituminous Concrete.

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	IS :1203 -1978 (RA-2009)	84	80 to 100
2	Softening point, ^{0}C	IS :1205 -1978 (RA-2009)	44	Min. 40
3	Ductility at 27^{0}C, cm	IS :1208 -1978 (RA-2009)	100 >	Min. 75
4	Flash Point, ^{0}C	IS :1209 -1978 (RA-2009)	290	Min. 220

*Information is furnished by the Customer/Representative.

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VIDYARANI P.K.
Technical Manager

****

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/AIV/2015-16 14.10.2015

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
Name of the Work	Improvements & Asphalting to Kodigehalli Enclave roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/10(16739)WO/32/2015-16 Dated: 22.04.2015
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	14.10.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	380	382	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	78	79	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	302	303	
4	Aggregate Impact value = percent fines / $100^* (W_2/W_1)\%$	20.53	20.68	20.60

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/AIV/2015-16 14.10.2015

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
Name of the Work	Improvements & Asphalting to Kodigehalli Enclave roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/10(16739)WO/32/2015-16 Dated: 22.04.2015
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	14.10.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	385	387	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	82	83	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	303	304	
4	Aggregate Impact value = percent fines $100^* (W_2/W_1)\%$	21.30	21.45	**21.37**

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/Shape_T/2015-16 14.10.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
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Reference	EE/BTP/BBMP/E-PMT/10(16739)WO/32/2015-16 Dated: 22.04.2015
Technical Reference	IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	14.10.2015

Result : Flakiness Index = **12.35%**

Elongation Index = **13.60%**

Result : Combined Flakiness & Elongation index **25.95%**

Civil-Tech Consultants & Engineers Bangalore

Comments:

→ Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

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DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
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Name of Work	Improvements & Asphalting to Kodigehalli Enclave roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/10(16739)WO/32/2015-16 Dated: 22.04.2015
Technical Reference	IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	14.10.2015

Civil-Tech Consultants & Engineers Bangalore

Result : Flakiness Index = **11.28%**

Elongation Index = **13.25%**

Result : Combined Flakiness & Elongation index **24.53%**

Comments:

→ Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/Stripping/2015-16 16.10.2015

Stripping Value of Road Aggregates (Static Immersion Test)

IS: 6241

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
Name of the work	Improvements & Asphalting to Kodigehalli Enclave roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/10(16739)WO/32/2015-16 Dated: 22.04.2015
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	16.10.2015

Type of binder : 80/100
Percentage of binder used : 5.0% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.0 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.3	3.53	96.47
2	3.7		
3	3.6		

Comments:

→ Minimum allowable Aggregate retained coating for Semi Dense Bituminous Concrete is 95%

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/Sp_Wa/2015-16 16.10.2015

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
Name of the Work	Improvements & Asphalting to Kodigehalli Enclave roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/10(16739)WO/32/2015-16 Dated: 22.04.2015
Type of Mix	Semi Dense Bituminous Concrete
Source / Location	Hotmix Plant, Bangalore
Date of Testing	16.10.2015

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2005	2006	2007	
2	Weight of basket suspended in water	W_2 g	750	750	750	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1255	1256	1257	
4	Weight of saturated surface dry aggregate in air	W_3 g	2010	2009	2011	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	755	753	754	
6	Weight of oven dried aggregate	W_4 g	1995	1996	1994	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.642	2.651	2.645	2.646
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.696	2.697	2.706	2.700
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.75%	0.65%	0.85%	0.75%

Comments:

→ Maximum allowable Aggregate Water absorption value for Semi Dense Bituminous Concrete is 2.0

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/Bitumen/2015-16 16.10.2015

BITUMEN DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AS per IRC : SP : 11 - 1984

CUSTOMER	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
AGENCY	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
NAME OF THE WORK	Improvements & Asphalting to Kodigehalli Enclave roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
REFERENCE	EE/BTP/BBMP/E-PMT/10(16739)WO/32/2015-16 Dated: 22.04.2015
SAMPLE I/D	Roads at Kodigehalli Enclave, Ward No.09, BBMP, Bangalore.
DATE OF TESTING	16.10.2015

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475	474
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	25	26.00
7. Bitumen content in %	5.00	5.20
8. Average	**5.10**	

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/Bitumen/2015-16 16.10.2015

GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

As per IS : 2386 and IRC : SP : 11 - 1984

CUSTOMER	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
AGENCY	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
NAME OF THE WORK	Improvements & Asphalting to Kodigehalli Enclave roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
REFERENCE	EE/BTP/BBMP/E-PMT/10(16739)WO/32/2015-16 Dated: 22.04.2015
SAMPLE I/D	Roads at Kodigehalli Enclave, Ward No.09, BBMP, Bangalore.
DATE OF TESTING	16.10.2015

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	28.69	6.04	6.04	93.96	90-100
4.75	262.3	55.22	61.26	38.74	35-51
2.36	53.15	11.19	72.45	27.55	24-39
1.18	50.22	10.57	83.02	16.98	15-30
0.3	25.26	5.32	88.34	11.66	9-19
0.075	35.26	7.42	95.76	4.24	3-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	36.33	7.66	7.66	92.34	90-100
4.75	262.5	55.38	63.04	36.96	35-51
2.36	59.25	12.50	75.54	24.46	24-39
1.18	45.26	9.55	85.09	14.91	15-30
0.3	21.23	4.48	89.57	10.43	9-19
0.075	25.65	5.41	94.98	5.02	3-8

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/AGG/2016-17 16.10.2015

Aggregate Gradation Test

IS : 2386 Part I

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP,
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
Name of the Work	Improvements & Asphalting to Kodigehalli Enclave roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/10(16739)WO/32/2015-16 Dated: 22.04.2015
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete (SDBC)
Date of Testing	16.10.2015

Total Weight of Sample: **5150** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade II MORTH specification
9.5	385	7.5	7.48	92.52	90-100	
4.75	2750	53.4	60.87	39.13	35-51	
2.36	625	12.1	73.01	26.99	24-39	
1.18	450	8.7	81.75	18.25	15-30	
0.3	355	6.9	88.64	11.36	9-19	
0.075	285	5.5	94.17	5.83	3-8	

Total Weight of Sample: **5250** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade II MORTH specification
9.5	350	6.7	6.67	93.33	90-100	
4.75	2595	49.4	56.10	43.90	35-51	
2.36	625	11.9	68.00	32.00	24-39	
1.18	430	8.2	76.19	23.81	15-30	
0.3	480	9.1	85.33	14.67	9-19	
0.075	520	9.9	95.24	4.76	3-8	

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/Stability/2015-16 16.10.2015

TEST REPORT ON STABILITY OF MIX

Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	:	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
Name of the Work	:	Improvements & Asphalting to Kodigehalli Enclave roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	:	EE/BTP/BBMP/E-PMT/10(16739)WO/32/2015-16 Dated: 22.04.2015
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Semi Dense Bituminous Concrete
Date of Testing	:	16.10.2015

The results of the tests conducted on the Semi Dense Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-16)
1	Marshal Stability, Kn	8.35	8.40	8.2 Kn (min)
2	Marshal flow, mm	3.30	3.45	2 – 4
3	Percent air voids in Mineral Aggregate	3.55	3.90	3 – 5
4	Voids in Compacted Mix	13.75	13.60	13 – 15
5	Percent Voids filled with Bitumen	66.20	67.50	65 - 78
6	Density, g/cc	2.27	2.28	--

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